

The paragraph beginning at page 3, line 28:

A2
An example of the present invention is a method for producing dummy metal patterns shown in the flow diagram of Fig. 1, and designated therein by the general reference character 10. Fig. 2 is a side elevational, partially cross sectional diagrammatic (not to scale) view of a small portion of a reflective LCOS array 11, such as might employ the present inventive method and construction. The reflective LCOS array 11 has, not unlike conventional prior art devices, a plurality of material layers 12. The embodiment discussed by way of example herein has a mirror layer 14, a first metal (M1) layer 16, a second metal (M2) layer 18, and a third metal (M3) layer 20. In the present example also are a poly (recrystallized silicon) layer 22 and a diffusion layer 24. One skilled in the art will recognize that where traces on the poly layer 22 mask those of the diffusion layer 24 are semiconductor junctions 26. Also visible in the view of Fig. 2 are a plurality of silicon dioxide insulating layers 28.

The paragraph beginning at page 6, line 9:

A3
In a fill partially filled areas operation 58, areas such as the circuitry area 29, discussed above, are filled. As discussed previously herein, the margin area 34 (Fig. 3) is grown around the functional circuitry 32 in a grow margin area operation 59. In a trim dummy to margin operation 60 (Fig. 1) the fill metal traces 52 (Fig. 5) are trimmed to eliminate overlap with the functional circuitry area 40 (Fig. 4). This will leave a first trimmed fill pattern 62 as seen in the diagram of Fig. 6. The first trimmed fill pattern 62 has trimmed metal traces 64 which are located only overlying the fill area 38 of Figs. 3 and 4 and, in this example, the unfilled area 31 (Fig. 3). In the example of Fig. 5, it can be seen that the first trimmed metal traces 64 has a metal sliver 66 which is left where trimming away the functional circuitry area 40 (Fig. 4) leaves only a thin portion of the fill metal traces 52 (Fig. 5) behind.

The paragraph beginning at page 6, line 27:

A4
Fig. 8 is an example of a completed metal trace pattern 76. The completed metal trace pattern 76 is created in an overlay functional and dummy patterns operation 78 (Fig. 1) by combining the functional circuitry 32 with the second trimmed metal traces 74. According to the present invention, the surface of the circuitry area 29 and the unfilled area 31 (Fig. 3) are filled in with patterns which

A4
contd

general resemble the functional circuitry 32 (Fig. 3) thereabout.

The paragraph beginning at page 5, line 7:

A5
Fig. 5 is an example of a portion of a metal fill pattern 50. The metal fill pattern 50 has a plurality of fill metal traces 52 separated by unfilled space 54. According to the present invention, the fill metal traces 52 of the metal fill pattern 50 will be selected to be alike to adjacent functional circuitry (not shown) which might lie adjacent or near to the portion of the example metal layer 30 (Fig. 3) on which the functional circuitry 32 of Fig. 3 is found. In the example presently described, the metal fill pattern 50 is selected from the metal traces of the particular metal layer 14, 16, 18 or 20 on which the metal fill pattern 50 is to be used. As will be discussed in more detail hereinafter, should there be substantial gaps in such metal fill pattern 50 it will be an option of the operator to add metal to complete the metal fill pattern 50. In the embodiment of the invention described herein the metal fill pattern 50 is completed by a visual inspection and operator intervention, as will be discussed in relation to the inventive method hereinafter. It is within the scope of the invention that the metal fill pattern could also be completed using a more automated method, according to either a known algorithm or another yet to be developed.

The paragraph beginning at page 7, line 2:

A6
One skilled in the art will recognize that the operations 59, 60, 70 and 78 can be repeated for each different circuitry area 29 to be filled in according to the present inventive method 10. Similarly, in the fill unfilled areas operation 57 as many iterations of the metal fill pattern 50 as necessary to fill the existing quantity of unfilled areas 31 can be used. The quantity of iterations of the inventive method 10 and each step thereof will be peculiar to the particular application.

The paragraph beginning at page 7, line 20:

A7
The inventive method for creating dummy fill metal patterns 10 is intended to be widely used in the production of integrated circuits, and in particular video imaging devices, especially where the size and/or criticality of the display requirements call for minimal distortion and optimal image clarity and resolution. The present inventive method is potentially applicable to any metal (circuitry)